

**IN THE UNITED STATES DISTRICT COURT FOR THE
SOUTHERN DISTRICT OF NEW YORK**

UNITED STATES OF AMERICA,

Plaintiff,
v.
ANTON PERAIRE-BUENO, and JAMES
PERAIRE-BUENO,
Defendants.

Case No.: 1:24-cr-00293-JGLC

**DEFENDANTS' REPLY IN SUPPORT OF
JOINT MOTION TO COMPEL EXPERT DISCLOSURES**

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The Court should compel the government to provide expert disclosures for the three technical witnesses because, although the precise content of their anticipated testimony remains unknown, it is apparent that the government cannot prove its case without expert testimony and that these witnesses will do that work. The government’s fraud theory hinges on highly technical opinions, including on the meaning supposedly conveyed by the alleged False Signature—a digital signature sent to the MEV-Boost relay (a piece of computer code) through the MEV-Boost software. Under the government’s novel theory, whether and how the relay was supposedly “tricked” by that signature marks the line between an innocent trading strategy and a criminal fraud scheme. The government also claims that the alleged Exploit violated the Ethereum and MEV-Boost protocols and has argued that those protocols are like “rules” governing users’ conduct. Whether the alleged False Signature conveyed any meaning that could be “false,” whether there are “rules” that govern conduct on Ethereum or MEV-Boost, and whether the alleged Exploit violated any such “rules,” turns on the technical functioning of specialized code. Federal Rule of Criminal Procedure 16(a)(1)(G) guarantees the Peraire-Buenos meaningful pretrial disclosure of the expert opinions (and their bases and reasons) by which the government intends to prove these novel theories.

The government’s opposition confirms, rather than dispels, the Peraire-Buenos’ concerns that the government has not disclosed expert testimony it will seek to elicit at trial. There is a glaring disconnect between the opposition’s description of the “Flashbots Representative’s” likely testimony and claims made during the government’s presentation at the June 17, 2025, hearing premised on that witness’s testimony. In particular, whereas the government argued that the evidence would show that the MEV-Boost protocol established applicable rules, the opposition describes no such testimony. That disconnect, among others—which the government entirely

ignores—is troubling because the opposition reveals that the government intends to use the Flashbots Representative as an authority on how the MEV-Boost software worked, the user expectations that followed from it, and how the alleged Exploit upset expectations about that technology among users, including the alleged Victim Traders. His testimony is likely to contain important opinions that easily qualify as expert under Federal Rule of Evidence 702. The same is likely true for Nonparty-1 and CW-1 to the extent their testimony covers the same ground as the Flashbots Representative’s (or, in the case of Nonparty-1, certain additional topics). To be sure, all three witnesses may offer factual testimony based on their personal knowledge or even lay opinion testimony. But the government argues that *everything* they will say—and, implicitly, *everything* it believes it needs to prove fraud—is lay testimony, and that erroneous contention rests on a misreading of Federal Rule of Evidence 701 that even its own cited authority rejects.

The Court therefore should compel the government to provide expert disclosures for witnesses whose testimony will cover the topics set forth in Section II of this reply. Consistent with the purposes of Rule 16, the Court should set the Peraire-Buenos’ disclosure deadline two weeks after the government serves its required disclosures.

ARGUMENT

I. THE COURT SHOULD ORDER THE GOVERNMENT TO PROVIDE DISCLOSURES CONSISTENT WITH RULE 16(a)(1)(G).

The government’s arguments in opposition rely on a reading of Rule 701 that has no support in the text of the rule or the cases construing it. Evaluated against the correct standard, it is evident that portions of the three technical witnesses’ anticipated testimony are likely expert under Rule 702 and thus must be disclosed under Rule 16(a)(1)(G).

A. The Government’s Opposition Misunderstands Rule 701.

Although its background recitation of the law on pages 9-11 of its opposition is largely unobjectionable, the government’s arguments as applied to the three witnesses rely on a blanket carve-out to the rules governing expert testimony for “percipient” witnesses that has no legal basis. According to the government, a lay witness may provide technical opinions on the workings of a novel technology like MEV-Boost—and the rights, obligations, and expectations of its many users—simply because he is a “MEV-Boost user,” Opp’n 11, 12 (Nonparty-1), a “participa[nt] in [a] conspiracy” that allegedly involved the use of the MEV-Boost software, *id.* at 12 (CW-1), or was “involved in developing, testing, and implementing” the MEV-Boost software, *id.* at 16 (Flashbots Representative). These arguments myopically focus on the identity of the witnesses to side-step the critical question—*i.e.*, whether *the opinions* are “based on scientific, technical, or other specialized knowledge.” Fed. R. Evid. 701(c). The text of Rule 701 and the cases construing it reveal the government’s error.

As an initial matter, and as the government ignores, Rule 701(a) makes plain that *only* percipient witnesses can offer lay opinion testimony. *See* Fed. R. Evid. 701(a) (limiting lay opinions to those “rationally based on the witness’s perception”). In other words, that a witness is familiar with a topic based on his own experiences—*i.e.*, through his job, training, and/or participation in the underlying events—is necessary, but not sufficient, to permit the opinion. Although the government would stop there, Rule 701 has two more requirements. Subsection (b) requires the opinion “to be helpful to clearly understanding the witness’s testimony or to determining a fact in issue,” and subsection (c) requires the opinion to be “not based on scientific, technical, or other specialized knowledge.” Fed. R. Evid. 701(b), (c). The clear import of subsection (c) is that some opinions that are “rationally based on the witness’s perception” are nevertheless inadmissible as lay opinions when the witness relies on his technical knowledge or

expertise when formulating and explaining them. *See, e.g., United States v. Garcia*, 413 F.3d 201, 216 (2d Cir. 2005) (a percipient witness's testimony is expert when the "reasoning process depended, in whole or in part, on his specialized training and experience").

Second Circuit caselaw, including that cited by the government, has repeatedly recognized that a witness's "percipience" is a threshold requirement for lay opinion testimony and not the end of the Rule 701 inquiry. The government relies heavily on three Second Circuit cases affirming the admission of lay opinion testimony—*United States v. Cuti*, 720 F.3d 453 (2d Cir. 2013); *United States v. Yannotti*, 541 F.3d 112 (2d Cir. 2008); and *United States v. Rigas*, 490 F.3d 208 (2d Cir. 2007)—and attempts to minimize cases cited by the Peraire-Buenos holding that lay opinions were improperly admitted—*United States v. Garcia*, 413 F.3d 201 (2d Cir. 2005), and *Bank of China, N.Y. Branch v. NBM LLC*, 359 F.3d 171 (2d Cir. 2004). But these cases are not in conflict. *See Dynamic Concepts, Inc. v. Tri-State Surgical Supply & Equip. Ltd.*, 716 F. App'x 5, 10-11 (2d Cir. 2017).

In *Dynamic Concepts*, the Second Circuit synthesized these cases this way:

[W]e have often held that a district court does not necessarily abuse its discretion when it allows a party with personal experience with the facts of a case to provide lay opinion based on that personal experience. [Citing *Yannotti*, 541 F.3d at 126, and *Rigas*, 409 F.3d at 225.] However, and notwithstanding these decisions, we have made clear that, if a witness who has personal familiarity with the facts of a case nevertheless bases his opinions as to those facts on specialized or technical knowledge extrinsic to that personal, relevant experience—i.e. reasoning processes unfamiliar to average persons—then a district court does not necessarily abuse its discretion in finding the opinions to be expert. [Citing *Garcia*, 413 F.3d at 216, and *Bank of China*, 359 F.3d at 181.]

716 F. App'x at 10-11.¹ In *Dynamic Concepts*, the Second Circuit affirmed the district court's ruling that certain testimony from two CEOs about their companies' technologies was expert

¹ Parentheticals to the cited cases, alterations, and internal quotation marks omitted.

testimony. *See id.* at *11. Although the witnesses “had familiarity with their programs because of their experience as CEOs, the reasoning processes on which they relied to analyze these programs and situate them in the industry as a whole” drew on their specialized expertise and thus was not admissible under Rule 701. *Id.*

Cases like *Dynamic Concepts*, *Garcia*, and *Bank of China* demonstrate the error in the government’s argument that Rule 701(c) does not apply, or applies differently, depending on the witness’s involvement in the underlying events. Rather, Rule 701(c) requires that the opinion itself must not “rely on reasoning processes unfamiliar to average persons.” *Id.* at *11; *see also, e.g.*, *United States v. Haynes*, 729 F.3d 178, 195 (2d Cir. 2013) (officer who discovered drugs in gas tank offered expert opinion when he “described how the float on the outside of the gas tank worked and why the gas gauge would have registered zero to empty while the drugs were in the gas tank” because this reasoning was beyond the “processes of the average person”); *DVL, Inc. v. Niagara Mohawk Power Corp.*, 490 F. App’x 378, 380-81 (2d Cir. 2012) (engineer involved in a hazardous material remediation efforts offered expert testimony about the way in which the defendant contributed to the contamination because “ordinary lay persons would have no knowledge of the conditions under which chemical contamination of soil can migrate from site to site”).

The government’s cited cases demonstrate this principle. In *Yannotti*, for example, a member of a loansharking conspiracy testified to the meaning of words used by the conspirators. *See* 541 F.3d at 117-18 (testimony that “I’m going to leave you a two” meant “‘200 dollars’ in interest”). The Second Circuit held that testimony about the meaning of words based on the witness’s experience using those words in conversations with the defendants was “derived from a reasoning process familiar to average persons” even if the topic (loansharking) was unfamiliar. *Id.*

at 126.² Similarly, in *Cuti*, the court noted that the accounting witnesses' testimony did not concern the meaning or purpose of "accounting rules involved in the recognition of revenue from real estate concession transactions," which would "appear technical and unfamiliar to everyday life." 720 F.3d at 460. Instead, the testimony was limited to how the accountants would have acted if they had known certain facts, and "[w]hen the issue for the fact-finder's determination is reduced to impact—whether a witness would have acted differently if he had been aware of additional information—the witness so testifying is engaged in 'a process of reasoning familiar in everyday life.'" *Id.* (quoting Fed. R. Evid. 701 advisory committee's notes to 2000 amendments).

B. The Government's Opposition Demonstrates that the Supposed "Percipient Witness" Testimony Will Contain Expert Opinions under Rule 702.

Application of the above principles to the anticipated testimony of the three technical witnesses shows that the government's claim that it will offer *solely* lay opinions is implausible.³ To be clear, the Peraire-Buenos do not argue that the government is required to offer expert testimony in any given case. Nor do they argue that the entirety of the witnesses' likely testimony is expert. ECF 103 at 12. But given the nature of the government's fraud allegations, the technical expertise and specialized knowledge the government claims these witnesses possess, and the government's summaries of their likely testimony, the government's argument that there will be no expert testimony is obviously wrong with respect to the Flashbots Representative and dubious as to the other two witnesses.

² The courts reached similar holdings in the government's other cases involving the interpretation of coded or specialized words. See *United States v. Krikheli*, 461 F. App'x 7, 10 (2d Cir. 2012); *United States v. Ferguson*, 676 F.3d 260, 293 (2d Cir. 2011); *United States v. Ghavami*, 23 F. Supp. 3d 148, 172 (S.D.N.Y. 2014). These cases, like *Yannotti*, do not assist the government. As explained below, the anticipated testimony goes far beyond defining vocabulary; rather, it purports to explain how complicated blockchain technology functions.

³ The government does not argue that the testimony of these witnesses would be purely factual.

1. Flashbots Representative

The government overreaches with respect to the Flashbots Representative. As the Peraire-Buenos noted in their motion, the argument that this witness is entirely “percipient” with respect to the alleged Exploit is incorrect. ECF 103 at 12. Neither he nor Flashbots were aware of, or participated in, the alleged Exploit as it occurred. He is not an alleged co-conspirator or an alleged victim.⁴ The opposition makes clear that he will explain how certain of the technology worked and how the Peraire-Buenos allegedly defied expectations about how the technology functioned through the alleged Exploit—precisely the role one would expect an expert to play. Rule 701(c) was added to prevent this type of evasion of the expert witness rules for the “simple expedient of proffering an expert in lay witness clothing.” Fed. R. Evid. 701, advisory committee’s notes to 2000 amendments.

The following testimony described in the opposition, at a minimum,⁵ is expert:

- There “was a vulnerability in the MEV-Boost software” or that “the software vulnerability was exploited.”

⁴ The government’s attempt to present Flashbots as a “victim” by referring to the representative as involved in the “development . . . of the very software that the defendants exploited,” Opp’n 15, should be rejected. The Superseding Indictment (“Indictment”) does not charge a scheme to defraud Flashbots. The only alleged victims of the offense are the sandwich bots. *See generally* ECF 70.

⁵ This list is not meant to be exhaustive. The opposition prefaces some, but not all, of the representative’s anticipated testimony as relating to how MEV-Boost was “designed” to function. It is unclear what work that word does here. To the extent the representative will not testify about how MEV-Boost functioned but only about how he personally hoped or intended it to function, or what he personally hoped to achieve through its development, that testimony has no obvious relevance. It seems clear, however, that the government seeks to use his testimony more broadly to establish and explain the program’s actual functioning. And several opinions, including those that concern the Peraire-Buenos’ alleged actions, plainly extend beyond the representative’s subjective views about the program’s “design.”

- The alleged Exploit caused the relay to behave in a way “it was not designed to do” and “contrary to the way that Flashbots had designed the MEV-Boost software.”
- The Peraire-Buenos’ validator “altered the parent and state roots of the blockheader before returning the signed (but invalid) blockheader to the relay” and related testimony that the relay “did not check to confirm” that these fields “were valid.”
- Testimony about the problems that MEV-Boost was “designed” to solve by “separat[ing] the dual roles of building a block . . . and validating a block.”
- The lack of “trust” between certain users of the MEV-Boost system and the relay’s role as an “intermediary” between builders and validators who don’t “trust” each other.
- The four “steps” the “team designed the MEV-Boost software to permit.”
- Through the alleged Exploit, the relay was “tricked.”

Additionally, the following claims made by the government at the June 17 hearing would be expert:

- MEV-Boost functions “similar to traffic rules” to alleviate “network congestion and disorder on the Ethereum network” by “add[ing] structure to that confusion, to provide predictability through rules.” 6/17/25 Hr’g Tr. 49-50.
- A validator’s signature functions like a “promise” to publish a block as structured by the block builder, and the allegedly False Signature was a broken promise. Tr. 55-56.
- The “validator was not supposed to reorder the transactions at all.” Tr. 52.

These claims, which were sourced to a Flashbots “software engineer” in the government’s June 17 oral argument (Tr. 44, 46, 85), are conspicuously absent from the opposition’s summary of the representative’s likely testimony. The opposition does not describe any testimony regarding “rules” that apply to MEV-Boost users. Instead, it gestures vaguely at “online repositories that are

open to the public,” “a ‘read-me’ that accompanies the MEV-Boost software[,] and user guides,” without identifying them. Opp’n 8. Nor does it identify how others—*i.e.*, users of the Ethereum Network or MEV-Boost software—were bound, or not bound, by the contents of these unidentified public documents. And rather than describing the validator’s signature as a “promise,” the government now says it will elicit testimony that the “Flashbots Representative’s team designed the MEV-Boost software to permit the following steps … (iv) the validator commits to publishing the block as structured by digitally signing the blockheader that is sent to the relay.” Opp’n 8. It is unclear from the government’s limited disclosures to date whether there is relationship between the “promise” the Peraire-Buenos supposedly made (and broke) and the “commit[ment]” the MEV-Boost system purportedly was “designed . . . to permit.”⁶

As the Court is aware, this testimony (both as previewed in the opposition and at oral argument) covers key disputed issues in the case and underpins the government’s fraud theory. In fact, the government concedes that this testimony is foundational for “the jury to understand why the defendant’s conduct was fraudulent.” Opp’n 14. Whether the events alleged in the Indictment amount to fraud turns on the technical workings of the Ethereum protocol and MEV-Boost software. Take, for example, the opinion that the relay was “tricked.” The government’s fraud theory apparently hinges on this opinion because there are no alleged communications or interactions between the Peraire-Buenos and the alleged Victim Traders. The relay, however, is computer code. It is not a human being who can testify at trial that he was “tricked” or explain his expectations. Apparently, the government will have the Flashbots Representative speak for the

⁶ There is good reason to suspect the government will seek to elicit this testimony regarding “rules” for MEV-Boost users, “promises” by validators, and norms about what validators are “supposed” to do from the Flashbots Representative because it promised the Court the evidence would establish these propositions, and there is no other witness identified who could provide this testimony.

relay and offer his own view that the relay was deceived.⁷ As an additional example, the government has argued that “that the Lure Transactions were misrepresentations because the defendants had no intention of executing them in the Victim Traders’ proposed bundles,” ECF 61 at 16, a theory that relies on proof that 1) a pending transaction in the public mempool makes an implied representation to all others in the Ethereum network that the proposer is willing to be sandwiched,⁸ 2) a signature on a blockheader makes a promise by the validator not to re-order the transactions on a potential block, and/or 3) there are applicable rules prohibiting re-ordering. The opposition’s summary of the representative’s testimony does not appear to cover these issues relating to the Lure Transactions or transaction re-ordering. The failure to provide proper disclosures on these topics is significant because the Peraire-Buenos disagree with these opinions, which contain numerous mistaken claims about the MEV-Boost program and blockchain technology generally.⁹

In light of this, the government’s claim that “the Flashbots Representative’s expected testimony regarding the MEV-Boost software is not based on opinions rendered from any

⁷ The government’s attempt to minimize this testimony as “background” or “basic factual explanation of terms” downplays the nature and importance of this testimony. Opp’n 14-15.

⁸ To be clear, there is no allegation that the “Lure Transactions” were submitted to *MEV-Boost* by the Peraire-Buenos, and no witness could testify that they were. The sandwichers allegedly picked the “Lure Transactions” from the public mempool, based on calculations performed by their MEV-Bots to identify potentially profitable trades, and *then* the transactions were submitted to MEV-Boost as part of a proposed bundle.

⁹ As just one example, it is unclear how the government could prove the opposition’s claim that, as part of the alleged Exploit, the validator “*altered* the parent and state roots of the blockheader,” Opp’n 7 (emphasis added), based on what was provided from and to the relay. In any event, an opinion interpreting the dense string of computer code reflecting the block at issue to determine if the blockheader was “*altered*” (and characterizing it as such) would rest on technical expertise and specialized reasoning. The Peraire-Buenos are entitled to notice of how a government witness will come to that opinion.

scientific, specialized, or technical knowledge, but rather based on his actual, direct experience as the Flashbots product lead who oversaw the development, testing, and implementation of the very software” at issue, Opp’n 15, is baffling. The first half is obviously wrong; that this testimony draws on specialized and technical knowledge is beyond reasonable dispute. The sentence also presents a false distinction. If the representative oversaw the development of MEV-Boost, he did so because of his pre-existing specialized and technical knowledge in blockchain technologies and the Ethereum Network (of which he was not the “designer”). The representative’s “actual, direct experience” with blockchain technologies (including MEV-Boost and the blockchain technologies on which it rests) and his “scientific, specialized, or technical knowledge” of those same technologies are two sides of the same coin; they are not separate reservoirs of knowledge on which the representative could draw. *Compare Yannotti*, 541 F.3d at 125-26 (emphasizing the co-conspirator’s knowledge of code words derived entirely from the charged conspiracy), *with Garcia*, 413 F.3d at 216 (holding that “decoding” testimony that relied in part on the witness’s general law enforcement experience violated Rule 701(c)).

More fundamentally, the sentence reveals the government’s mistaken understanding of Rule 701. In the government’s view, an opinion is either based on “actual, direct experience,” in which case it is admissible as a lay opinion under Rule 701(a), or it is based on “scientific, specialized, or technical knowledge,” in which case it is inadmissible as lay opinion under Rule 701(c). But these concepts—direct experience and scientific, specialized, or technical expertise—of course are not mutually exclusive. As discussed above, *see supra* p. 3, Rule 701 reflects that reality by connecting its three sub-sections with “and” rather than “or.” To be admissible, a lay opinion must be both “(a) rationally based on the witness’s perception; . . . and (c) not based on scientific, technical, or other specialized knowledge.” Fed. R. Evid. 701 (emphasis added).

Under Rule 701(c), *any* witness's opinions are expert if they depend on "reasoning processes unfamiliar to average persons." *Dynamic Concepts*, 716 F. App'x at 10-11. It is hard to imagine reasoning less familiar to an "average person[]" than that required to determine whether (a) an aspect of a computer code is a "vulnerability," (b) certain actions by a validator were "exploitative" of that "vulnerability," (c) the MEV-Boost relay—itself a piece of computer code—behaved how it was "designed," or (d) the relay was "tricked" when it received a "blockheader" with supposedly "altered" "parent and state roots." Even within the domain of software engineers, these opinions are highly technical and specialized. The claim that these opinions do not depend on reasoning processes that would escape an average person is absurd.

None of the government's cases regarding inventors or employees moves the needle. *Johnson v. Barney*, 360 F. App'x 199 (2d Cir. 2010), involved employee testimony concerning "the policies and practices of [a] prison." *Id.* at 202. The opinion does not discuss the testimony or otherwise indicate that the defendant raised a Rule 701(c) argument. *See id.* There is no indication that the witness opined on the meaning of disputed terms in the policies or assessed any conduct against them. *See id.* Similarly, *Bic Corp. v. Far E. Source Corp.*, 23 F. App'x 36, 39 (2d Cir. 2001), did not discuss Rule 701(c) and contains virtually no description of the testimony concerning a "survey" or its significance in the case. The trial in *Medforms, Inc. v. Healthcare Management Solutions, Inc.*, 290 F.3d 98 (2d Cir. 2002), occurred before the enactment of Rule 701(c), and the relevant testimony concerned minor non-technical comments "about the meaning of the term 'program' and about the significance of [a co-worker's] involvement" in the invention process as background for a copyright dispute. *Id.* at 104, 110-11. In *523 IP LLC v. CureMD.Com*, 48 F. Supp. 3d 600 (S.D.N.Y. 2014), the co-founders of a company were permitted to testify about the features of a computer program but not in a way that implicated "'technical or other specialized

knowledge,’ such as software coding or computer systems functionality.” *Id.* at 635.¹⁰ None of these cases supports a carve-out of Rule 701(c) for the Flashbots Representative, whatever his personal experience with the MEV-Boost software, to explain contested and novel technical concepts to the jury or to opine on the way defendants or alleged victims in a criminal case are alleged to have interacted with the technology.

Finally with respect to this witness, the government’s effort to sweep in opinions through an explanation of “Flashbots’ efforts to determine the nature of the exploit and how it occurred,” Opp’n 14, fails. Just as there is no blanket exception to Rule 701(c) for percipient witnesses or inventors, there is no exception for witnesses who participated in a *post hoc* investigation. The “application of specialized knowledge to facts gleaned in an investigation in order to render an opinion at trial is sufficient to run afoul of Rule 701(c).” *New York v. Solvent Chem. Co.*, 453 F. App’x 42, 47 (2d Cir. 2011) (citing *Garcia*, 413 F.3d at 216-17); *see also Haynes*, 729 F.3d at 195; *accord, e.g., United States v. Holmes*, 129 F.4th 636, 650-53 (9th Cir. 2025) (laboratory scientists’ conclusions on performance of company technology based on their experiences as employees was improperly admitted as lay opinion).

2. Nonparty-1

The opposition reveals that Nonparty-1 has experience with the relevant blockchain technologies based on his role as “CEO of a quantitative trading firm” that “owned and controlled

¹⁰ Although the opinion does not describe the challenged testimony in detail, the few portions it highlights are non-technical and factual. *See id.* at 610 (describing the types of forms that are available for patients on an online portal, which fields on the forms are fillable by the patient, and the availability of different inboxes for different types of patient requests); *see also id.* at 636 (explaining that a patient “selects a user from a list of users where the message is to be sent” within the portal). The decision describes no opinions (other than the infringement opinion it struck) at all, let alone opinions that depend on technical expertise. And the testimony included no conclusions that some other user misused, exploited, or “tricked” the program, or that the program behaved differently than how it had been designed to work or how others might have expected.

trading bots (the ‘MEV Bots’) that identify potential profitable trading opportunities.” Opp’n 3. He will no doubt draw upon that expertise (which undisputedly pre-dates the events in this case), when testifying about his “understanding that the MEV-Boost system provided certainty that the proposed bundles would be published to the chain as originally ordered and structured or not at all.” *Id.* at 4. Like with the Flashbots Representative, this anticipated testimony is hedged as potentially limited to Nonparty-1’s “understanding.” In theory, a percipient witness’s testimony about his personal understanding of events is unobjectionable as a matter of Rule 701. But the terse summary suggests that the testimony may not be so limited and may cover some of the same expert ground as the Flashbots Representative’s. According to the summary, for example, Nonparty-1 may explain what it means, as a general matter, for a trade to go “through successfully.” *Id.* And he may characterize the alleged Exploit as involving an “alteration to [a] proposed bundle.” *Id.* These characterizations of the technology and events will be disputed at trial. It would be inappropriate to use an alleged victim’s testimony as a backdoor to establish contested, technical interpretations of the facts. Additionally, to the extent the government would seek to elicit testimony from Nonparty-1 about the economic theories underpinning Nonparty-1’s potential sandwich attacks (*i.e.*, why the MEV-Bot would identify them as profitable trading opportunities) or how the sandwiching trading strategy interacts with the technology of the decentralized exchange, that testimony likely would also implicate Rule 702.

The government’s argument that this testimony is categorically non-expert because it derives from his “own experience as a MEV-Boost user,” *id.* at 11, gets things backwards. It is precisely that pre-existing, specialized knowledge about Ethereum and MEV-Boost that makes the above conclusions likely expert. While an alleged victim’s recounting of the alleged crime in many cases is unlikely to implicate expert testimony, that is not always true. *See Bank of China*

359 F.3d at 180-81 (holding that testimony from an employee of victim bank involved in investigating a fraud was expert where it included “explanations regarding typical international banking transactions or definitions of banking terms, and any conclusions that he made that were not a result of his investigation”). The opposition makes clear that Nonparty-1’s testimony will include some testimony about how the technology functions. But that testimony, depending on how it is elicited, may draw upon Nonparty-1’s expertise and specialized knowledge. And an explanation of “terms of art or jargon,” Opp’n 11, echoes the testimony the Second Circuit found expert in *Bank of China*. See 359 F.3d at 182.

3. CW-1

The government’s opposition is opaque when describing the anticipated testimony of CW-1.

1. At pages 4-5, the government quotes at length from notes that purport to reflect information conveyed by the Peraire-Buenos or conversations with the Peraire-Buenos. It is not clear for what purpose. There is no dispute that CW-1, as an alleged co-conspirator, can testify as to his conversations with the Peraire-Buenos and about his role in the alleged Exploit—or that the Peraire-Buenos’ statements will be admissible against them, assuming they are relevant and not otherwise objectionable.

Elsewhere, however, the opposition states in conclusory fashion that “CW-1 will testify about how the defendants planned the Exploit for months before executing it” and “how the defendants executed the Exploit just as they had planned it[.]” Opp’n 12. It is unclear what this testimony would entail. To the extent the testimony would include the same opinions as the Flashbots Representative’s discussed above, *see supra* pp. 7-8, they would violate Rule 701(c) for the same reasons. And if the government does seek to elicit that type of opinion testimony from CW-1, the government’s cited cases involving co-conspirators decoding ambiguous words would obviously provide no support. *See supra* pp. 4-6 & n.2 (discussing *Yannotti* and similar cases).

II. THE COURT SHOULD ORDER DEFENSE DISCLOSURES ONLY AFTER THE GOVERNMENT COMPLIES WITH ITS RULE 16 OBLIGATIONS.

The government’s primary argument—that it “complies” with Rule 16(a)(1)(G) when it discloses it has no experts—is not relevant here. The Peraire-Buenos do not dispute that, in a case where the government does not offer any expert testimony, the government complies with Rule 16 by so informing the defense. Nor do they dispute that, in such a case, a defendant who nevertheless intends to call an expert would be required to disclose that testimony.

But this is not such a case. As explained above, the government’s argument that it will not offer *any* expert testimony through the three technical witnesses is dubious at best. The government’s refusal to provide Rule 16 disclosures for these witnesses means it is *not* in compliance. In these circumstances, a defendant is not obligated to provide expert disclosures until the government has complied with its obligations. *See United States v. Rajaratnam*, 2011 WL 723530, at *5 (S.D.N.Y. Feb. 25, 2011) (“[U]nder Rule 16, a defendant’s obligation to make expert disclosures … [turns] on whether the government has made its own expert disclosures.”). That is because Rule 16 contemplates staggered disclosures such that a defendant (who has no burden to put on a “case-in-chief” at all, *contra* Opp’n 23) can have notice of the expert topics it must be prepared to meet. *Cf. United States v. Kwok*, 2024 WL 1773143, at *1 (S.D.N.Y. Apr. 24, 2024) (Rule 16 disclosures allow parties to “secure opposing expert testimony if needed.” (quoting Fed. R. Crim. P. 16, advisory committee notes to 2022 amendment)).

This case demonstrates the importance of this feature of Rule 16. The government claims that the Peraire-Buenos have “more than sufficient information to notice any experts . . . because the Superseding Indictment, the extensive Rule 16 discovery in this case, and the Government’s further descriptions of the underlying conduct at oral argument provide a detailed account of the alleged fraud.” Opp’n 2. Not so. As explained in the Peraire-Buenos’ Motion to Dismiss, the

Indictment does not allege how the False Signature deceived the relay other than to say it was affixed to the header for an invalid block. *See* ECF 49 at 23-25. It does not specify what information the Defendants conveyed through the blockheader signature that allegedly made it false or why the signature can be interpreted that way. Regardless of whether those allegations suffice to allege a false statement under the standard for a motion to dismiss, Rule 16 requires a more detailed explanation of technical opinions and their bases. The opposition adds little to the Indictment’s surface-level allegations. And when purporting to describe the testimony of the Flashbots Representative, the government has omitted or adjusted theories that it previously suggested to the Court it would elicit through him. *Supra* p. 8; *see* 6/17/25 Hr’g Tr. 91-92.

This lack of clarity matters for the expert testimony that the Peraire-Buenos may need to rebut the government’s allegations. Consider the alleged False Signature, the explanation of which has shifted over time. In response to the Peraire-Buenos’ Motions to Dismiss, the government opted not to explain how the Indictment sufficiently alleged the content of the signature or why it was false. At the June 17 hearing, however, the government argued that the signature is a “promise” to publish the block the relay proposes and analogized the False Signature to a broken promise. *See supra* pp. 8-9. But the opposition suggests that no witness will say that. And the opposition’s description of the alleged False Signature does not appear to contain any material falsehoods; instead, the government now concedes that the relay was not checking certain fields in the blockheader, and that this fact was publicly available for all to see. *See* Opp’n 8. So how can the relay have been tricked by a falsehood in the signature? The Flashbots Representative apparently will testify that it was—presumably because the signature was a “commit[ment].” But because the government wrongly asserts that this testimony is non-expert, the Peraire-Buenos lack an expert opinion explaining how. Is that because of some principle relating to digital signatures?

Is it because of some content in the signature itself? Is it because of some guarantee of the protocol? This lingering uncertainty defies the purpose of Rule 16.¹¹

For all the above reasons, the Court should order the government to provide disclosures for the three witnesses consistent with Rule 16(a)(1)(G). Although the description of the likely testimony in the opposition is too generic to draw precise lines, at a minimum, the following topics should be subject to the Court’s order, to the extent the government intends to elicit testimony about them at trial:

- Testimony about how the MEV-Boost software was designed to work.
- Testimony about how the Ethereum network and block proposers operated prior to the advent of MEV-Boost.
- Testimony about how the MEV-Boost software interacts with Ethereum.
- Testimony about the roles of users of the MEV-Boost software, their rights and obligations, the existence (or lack) of “trust” between them, and any expectations around their use of the software.
- Testimony about the “rules” that govern use of the MEV-Boost software.
- Testimony about the meaning of the alleged False Signature and Lure Transactions.

¹¹ The government’s argument that discovery, including Slack messages allegedly involving the Peraire-Buenos, can provide the same type of notice as Rule 16(a)(1)(G) expert disclosures misses the point. The government’s approach denies the Peraire-Buenos notice of the key *opinions* they must prepare to meet and their bases and reasons. The prejudice to the Peraire-Buenos from the government’s approach does not stem from any confusion about the mechanics of the trading strategy labeled the “Exploit,” but rather from a lack of notice how the alleged Exploit—including the alleged False Signature—was fraud.

- Testimony about any representations communicated by or derived from a validator’s signature in the MEV-Boost system.
- Testimony about any representations communicated by or derived from an Ethereum user’s transaction in the pending transaction pool.
- Testimony about how the relay was allegedly “tricked” during the alleged Exploit.
- Testimony about whether, and how, the alleged Exploit violated the protocols, rules, norms, or expectations that exist on the Ethereum Network and/or MEV-Boost software.
- Testimony about the threats to the integrity of the Ethereum blockchain posed by the alleged Exploit.¹²

The government’s failure to disclose this expert testimony violates Rule 16 and risks its exclusion through a pretrial motion *in limine* or via objections at trial.

The Court should order that the Peraire-Buenos’ expert disclosures are due two weeks from the service of the government’s disclosures. If the Court denies the motion to compel, the Peraire-Buenos respectfully request that the Court set their expert disclosure deadline two weeks from the date of the order denying the motion.

CONCLUSION

The Court should grant the Peraire-Buenos’ Motion and order the government to promptly provide witness disclosures for the three technical witnesses consistent with Rule 16(a)(1)(G). The

¹² As discussed above, these opinions are plainly implicated by the government’s summaries of the Flashbots Representatives’ likely testimony in the opposition and at oral argument. For Nonparty-1 and CW-1, the government alternatively could meet its Rule 16 obligations by informing the defense that these witnesses will not opine on these topics. The opposition’s summaries of those witnesses’ anticipated testimony are too vague to provide that assurance.

Court should re-set the Peraire-Buenos' reciprocal expert disclosure deadline at two weeks after the government serves its disclosures.

Date: July 24, 2025

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CERTIFICATE OF SERVICE

I hereby certify that on July 24, 2025, I electronically filed the foregoing document with the Clerk of Court using the CM/ECF system which will send notification of such filing to all counsel of record in this matter who are on the CM/ECF system.

/s/ Katherine Trefz
Katherine Trefz